



## Fire Program Analysis – Preparedness Module

### Inclusion of State and local jurisdictions in FPA

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#### Issue:

There have been many questions on how FPA-PM will deal with state and local programs. Specifically, how is a multi-agency analysis, including non-federal jurisdictions, accomplished? There are three broad types of analysis that could have varying levels of participation from a local jurisdiction;

1. Analysis with only federal partners,
2. Multi-agency analysis with federal and state partners,
3. And single agency analysis that includes only one agency such as a state or local jurisdiction.

Deciding who will be part of an FPU analysis is one question. Another question is to clearly articulate the purpose of the analysis. In the short term many units are focused on analysis to meet budget submission deadlines. However, the FPA tool will be powerful and can be used to help answer many fire management program questions, separate from the budgeting need.

**Background:** System Business Rules that are currently in place, and relate to FPU analysis with non-federal partners.

1. An Agency unit is administratively defined on the landscape and may include state, tribal or private lands that lie within Agency boundaries.
2. FMUs can be aggregated to create a new FPU to achieve different analysis objectives.
3. Interagency dispatch units, interagency memorandums of understanding (MOU), and other general cooperative MOUs can be used as a starting point for the definition of FPUs.
4. Data about an FPU is owned by the owner of the land. However, if the land is not owned by an Agency (e.g. private land), fire related data is the responsibility of the fire protection agency.
5. Fire protection responsibility must be defined distinct from ownership.
6. If an FPU is solely owned by one Agency, the Local Agency Fire Planner can define the FPU data independent of other Agencies within the FPU. If the FPU has shared ownership, then the Local Agency Fire Planner(s) must collaborate to define FPU data.
7. For any given budget submission, an acre of land can be included in only one FMU and that FMU can be included in only one FPU.
8. An Agency must exclude lands from their budget request when there is an agreement with another Agency to assume fire protection responsibility.
9. FPA PM will use National Wildfire Coordinating Group (NWCG) standards for the minimum preparedness module configuration of fire resources.
10. Agency unit and sub-unit data must conform to NWCG standards. Unit is defined in the NWCG Glossary.
11. The Rural Fire Assistance Program is out of scope for the FPA PM System.
12. FMU Weights should be developed in consultation with the interagency and/or interdisciplinary team that represents the full array of integrated land management plan goals. The suppression objectives and weights are the result of interdisciplinary integration. The FPA system will not reconcile differences in objectives; this is an organizational process.
13. The FPA System will record when the simulated fire event exceeds the FMU objectives.
14. The analysis is performed using current year costs, which are available from the FPA-PM lookup data set. Lookup data is managed by the data administrator and updated as needed.
15. FPA-PM lookup data sets provide cost data for resource salary and benefits, and Cola, locality pay, and specialty pay if appropriate.
16. The user will input cost data for the actual year of analysis and the FPA System will inflate the cost for the out-year budget using nationally defined inflation factors.

17. Three funding categories are applied to fire resources. The three categories are budgeted (federal resources funded from the FPU fire preparedness budget and available for replication), non-budgeted (federal, state, or local resources not funded with fire preparedness and cannot be replicated), and loaned (resources whose preparedness budget is from outside the Fire Planning Unit being analyzed, i.e. National Shared Resources and cannot be replicated). See the White Paper on Describing Fire Resources and Dr. Rideout's paper on Optimal Deployment for Initial Attack – 12/18/2002.

Fire Planners have the opportunity to describe each fire resource as **Budgeted, Non-Budgeted, or Loaned**.

**Definitions:**

**Fire Planning Unit:** An administrative or organizational entity, consisting of one or more Fire Management Units. FPU's are the geographic scope of the landscape defined for fire management analysis. Fire Planning Units may relate to a single administrative unit, a sub-unit, or any combination of units and sub-units. Fire Planning Units are scalable, and may be contiguous or non-contiguous. Fire Planning Units are not predefined by Agency administrative unit boundaries, and may relate to one or more agencies. A grouping of Fire Management Units as agreed upon by local, interagency wildland agency administrators as well as local and state governments. This may be a dispatch zone or a combination of dispatch zones or local geographic areas.

**Budgeted Fire Resources:** Fire suppression resources that are primarily funded from the Wildland Fire Appropriation - Preparedness Activity to meet the local units needs associated with initial response to wildland fires. The budgeted resources are associated with the Fire Planning Unit being analyzed. Fire resources in this category can be replicated if additional fireline production is needed in determining the optimal solution for each total cost level. Note: Replication of fire resources allows the optimization routine to add a fire resource that does not currently exist. If an additional fire resource provides a better solution, then that resource is added.

**Non-Budgeted Fire Resources:** Fire suppression resources **not** funded from the Preparedness Activity. Non-budget resources are associated with the Fire Planning Unit being analyzed. There are two groups of non-budgeted resources. 1) Federal resources not funded from the preparedness activity and available to respond. 2) Non-federal resources, specifically state and local resources, that are available to respond. These resources can not be replicated by the system. All assumptions about the use of non-budgeted resources should be carefully documented.

**Loaned Fire Resources:** These resources would come from outside the FPU or not have their budget associated with the units being analyzed. Loaned resources are funded from the Preparedness Activity, but not funded in the FPU being analyzed. These fire resources can not be replicated.

## **I. Determining Federal Wildland Fire Preparedness through FPA-PM.**

Analysis purpose or objective [see business rule #2]:

- Only federal Fire Planning Unit (FPU) partners are analyzed.

Inputs:

- Federal Fire Management Units are geographically defined. Federal ownership and formal wildland fire protection responsibilities are defined.
- Non-federal protection is defined - non-federal FMU(s).
- Specific fire management objectives are extracted from the federal FMPs.
- Relative weights are applied to FMUs, based on specific fire management objectives. This is a cooperative and collaborative process between the federal partners.
- Federal fire occurrence is use for historic analysis. No fire occurrence data is needed for areas of non-federal protection.
- Weather, fuel, topography, and other characteristics are available as data inputs for each FMU being analyzed.
- Federal and non-federal fire resources are input to the analysis. [see business rule #17] The non-federal fire resources are identified within the system as “non-budgeted”. The containment contributions of the non-federal fire resources are modeled for federal fires.

#### Outputs:

- Simulated fire behavior outputs (rate of spread, intensity, final fire size) are available for the federal fires modeled by the system.
- The contribution of non-federal fire resources can be quantified.
- A count of non-federal fire resources utilized on federal protection is available.

## **II. Determining federal Wildland Fire Preparedness through FPA-PM. Non-federal administrative units are analysis partners.**

#### Analysis purpose:

- Federal Fire Planning Unit (FPU) partners are analyzed.
- Non-federal FPU partners are also analyzed.

#### Inputs:

- Federal and non-federal ownership and formal wildland fire protection responsibilities are defined.
- Fire Management Units are geographically defined. Fire protection objectives could necessitate FMU breaks along agency ownership boundaries. Geographically defined mutual aid blocks could also be the basis for FMUs used for analysis.
- Specific fire management objectives are extracted from the federal FMPs and other state or local jurisdiction guidance.
- Relative weights are applied to all FMUs, based on specific fire management objectives. This is a cooperative and collaborative process among all the analysis partners.
- Fire occurrence data by ownership and protection responsibility is needed for all FPU partners.
- Weather, fuel, topography, and other characteristics are available as data inputs for each FMU.
- Federal and non-federal fire resources are input to the analysis. [see business rules] The non-federal fire resources participating in the analysis could be identified within the system as “non-budgeted” or “budgeted”; and would only effect how the non-federal resources are displayed during reporting. We expect the reporting function will include an owner tag for each fire resource.

#### Outputs:

- The optimized solution provides a report of the contributions of all FPU partners.
- Simulated fire behavior outputs (rate of spread, intensity, final fire size) are available for all modeled fires.
- Standard reports output fire event data, budget data, fire resource quantities by cost level, and other reports for uniform display among FPU administrative units.
- The system reports on burned acre targets, and on whether specific fire management objectives have been met or not met.
- The system reports on fire program effectiveness for all the FPU partners. Relative changes in outputs from different total cost limits can be displayed.
- All budget and cost information is in current year federal dollars. [See business rules.]
- Foundation has been established for additional “what if” analysis.
- Note: Non-budgeted resources can not be replicated by the system. So the optimal level of non-federal resources needed for non-federal fires would not be determined. This specific question could be analyzed if local jurisdictions input their fire resources as budgeted, but recognize that federal costs are used for analysis and reporting.

### **III. Analysis of non-federal protection programs.**

Analysis Purpose: The FPA-PM tool could be used to develop non-federal fire program analysis or budget data.

State and local jurisdictions have substantially different costs for fire program delivery. Costs are input into the FPA-PM through “lookup tables”. The lookup tables currently under development contain only federal salary rates and other costs associated with support and indirect functions.

Analysis results will be reported with these federal costs. Non-federal units could simply take the list of fire resources identified by the analysis and apply the appropriate local costs to these resources to formulate a budget.

The analysis of a non-federal program could be performed by inverting the fire resource funding categories. The non-federal fire resources become the budgeted resources with their own lookup tables populated with the correct data. The federal fire resources are input as non-budgeted. Other costs associated with rules and thresholds, fire support, and indirect costs may also require review and updating of the underlying assumptions.

The development and administration of lookup tables specific to non-federal jurisdictions would likely be an additional cost to non-federal units.

The utility of the FPA system to state and local jurisdictions will be in a fire management program context. What is the best (optimal) mix the fire suppression resources at different budget levels? What are the optimal locations for fire resources? What are the tradeoffs of increasing emphasis on Wildland Urban Interface compared to natural resource (commodity) protection?